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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,135	08/15/2005	Josette Masle	2251/73607/JPW/MJW	3638
23432 7590 07/31/2007 COOPER & DUNHAM, LLP 1185 AVENUE OF THE AMERICAS NEW YORK, NY 10036			EXAMINER KUMAR, VINOD	
			ART UNIT 1638	PAPER NUMBER
			MAIL DATE 07/31/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/519,135

Applicant(s)

MASLE ET AL.

Examiner

Vinod Kumar

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 37-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 37-49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 05/18/07
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of objections and rejections***

1. Office acknowledges the receipt of Applicant's response filed on May 18, 2007. Newly added claims 37-49 are pending. Newly added claims 37-49 in conjunction with previously elected SEQ ID NOs: 1 and 2 are examined. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. All previous objections to specification have been withdrawn in light of amendments to the specification. All previous objections to drawings have been withdrawn in light of amendments to the drawings. All previous claim objections not set forth below have been withdrawn in view of claim amendments. This action is made FINAL.

### ***Election/restriction***

2. Newly submitted claims 37 and 42 are directed to SEQ ID NOs: 4, 6, 8, 10, 12, 20, and 45 which are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on August 18, 2006. The restriction was made final in the Office action mailed on November 14, 2006.

This application contains newly added claims 37 and 42 drawn to subject matter (SEQ ID NOS: 4, 6, 8, 10, 12, 20, and 45) which was nonelected with traverse in the reply filed on August 18, 2006. A complete reply to the final rejection must include

cancellation of nonelected subject matter or other appropriate action (37 CFR 1.144)

See MPEP § 821.01.

Applicants are reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Objections***

3. Claims 37 and 42 are objected to because of the following informalities:

Newly added claims 37 and 42 are objected for containing non-elected SEQ ID NOs: 4, 6, 8, 10, 12, 20, and 45. This objection has been necessitated by the claim amendment filed in the paper of May 18, 2007.

Appropriate action is required.

### ***Claim Rejections - 35 USC § 112***

4. Newly added claims 37-49 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of increasing the transpiration efficiency of a plant comprising introducing and expressing a nucleotide sequence encoding the ERECTA protein of SEQ ID NO: 2 in said plant, does not reasonably provide enablement for introducing a nucleic acid sequence encoding SEQ ID NO: 2 in a plant cell or plant by a method other than transformation. The

specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims for the reasons of record as applied to claims 12-19 (now cancelled) stated in the Office action mailed on November 14, 2006. Applicants traverse the rejection as applied to claims 12-19 (now cancelled) in the paper filed on May 18, 2007. However, Applicants did not provide arguments specific to the enablement issue raised in last paragraph bridging pages 12 and 13 of Office action mailed on November 14, 2006.

It is therefore maintained that the specification does not provide guidance on increasing transpiration efficiency in a plant comprising expressing a nucleic acid sequence encoding SEQ ID NO: 2 in any manner other than transforming said plant with SEQ ID NO: 1. It is further maintained that the specification does not provide guidance on co-factors, or positive regulators of a nucleic acid sequence encoding SEQ ID NO: 2 for example that makes the nucleic acid sequence encoding SEQ ID NO: 2 to overexpress to produce a plant with increased transpiration efficiency. The specification provides no guidance on up-stream regulatory factors, for example, that may be necessary in stimulating the overexpression of a nucleic acid sequence encoding SEQ ID NO: 2. In the absence of adequate guidance, it is maintained that undue experimentation would have been required by a skilled artisan at the time the claimed invention was made to determine how a plant cell or plant with increased transpiration efficiency can be produced by a method that comprises introducing and expressing a nucleic acid sequence encoding SEQ ID NO: 2 into said plant cell or plant without transforming the plant cell with said nucleic acid sequence.

Accordingly, the rejection is maintained.

***Claim Rejections - 35 USC § 102 & 103***

5. Newly added claims 37-49 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mitsukawa et al.

(Japanese Patent Publication No. JP 09056382 A, Published March 4, 1997, translation enclosed) and evidenced by Masle et al. (Nature, 436:866-870, 2005) for the reasons of record as applied to claims (12-19, now cancelled) stated in the Office action mailed on November 14, 2006. Applicants traverse the rejection for claims (12-19, now cancelled) in the paper filed on May 18, 2007.

Applicants argue that introducing a nucleic acid encoding an ERECTA protein (SEQ ID NO: 2) into a culture of plant cells does not result in the expression of ERECTA protein in all plant cells or plant. Applicants further argue that there will be plant cells in the culture that do not express the nucleic acid and consequently some of the plants will not express the nucleic acid. Applicants further argue that claim 37 and 42 require selecting for plants having enhanced transpiration efficiency (response, page 22, lines 1-24). Applicants further argue that Mitsukawa et al. do not explicitly teach selection of plants having enhanced transpiration efficiency based upon expression of an ERECTA protein. Applicants further argue that Mitsukawa do not inherently teach Applicant's claimed method (response, last paragraph bridging pages 22 and 23). Applicants further argue that ERECTA protein and transcriptional efficiency was not known until Applicants invention. Applicants further argue that it would not have been obvious to

one of ordinary skill in the art to produce, and/or to select for, plants expressing the ERECTA protein based on increased transcriptional efficiency (response, page 23, lines 9-16).

Applicant's arguments were fully considered but were not found to be persuasive. It is maintained that Mitsukawa et al. disclose a transgenic plant and a method of producing said transgenic plant comprising introducing and expressing a nucleotide sequence encoding the protein of accession No. AAW13408, which has 100% sequence identity to instant SEQ ID NO: 2.

It is further maintained that the property of increasing the transpiration efficiency of a plant is inherent to the method of making said transgenic plant disclosed in the reference because Mitsukawa et al. method used the protein having 100% sequence identity to instant SEQ ID NO: 2. Furthermore, it is maintained that the inherent property of increased transpiration efficiency is further evidenced by Masle et al. who disclose a ERECTA gene encoding a protein having 100% sequence identity to instant SEQ ID NO: 2, and wherein expression of said gene in a transgenic plant resulted in increased transpiration efficiency

See MPEP 2111.02. Also see *In re Cruciferous Sprout Litig.*, 301 F.3d 1343,1346-48, 64 USPQ2d 1202, 1204-05 (Fed. Cir. 2002) where a claim at issue was directed to a method of preparing a food rich in glucosinolates wherein cruciferous sprouts are harvested prior to the 2-leaf stage. The court held that the preamble phrase "rich in glucosinolates" helps define the claimed invention, as evidenced by the specification and prosecution history, and thus is a limitation of the claim (although the

claim was anticipated by prior art that produced sprouts inherently "rich in glucosinolates"). Furthermore, see *Integra LifeSciences I Ltd. V. Merck KGaA* 50 USPQ2d 1846, 1850 (DC Scalif 1999), which teaches that where the prior art teaches all of the required steps to practice the claimed method and no additional manipulation is required to produce the claimed result, then prior art anticipates the claimed invention.

As discussed in previous Office action, it is important to note that neither the specification nor the prior art suggests that transgenic plant population expressing a polynucleotide encoding instant SEQ ID NO: 2 results in a significant proportion of transgenic plants which do not exhibit an increased transpiration efficiency phenotype. It would have been obvious to one of ordinary skill in the art to select for transgenic plant with increased transpiration efficiency because selection of a transgenic plant with a phenotype would have been the ultimate useful goal without any surprising or unexpected results.

In order to avoid time consuming and expensive method step of plant transformation, it would have been further obvious for one of ordinary skill in the art to propagate the transgenic material overexpressing SEQ ID NO: 2, by transferring the useful-trait of "enhanced transpiration efficiency" to other economically useful cultivars of the same plant species using any plant breeding method of gene introgression with reasonable expectation of success.

Accordingly claims 37-49 are rejected.



### ***Conclusions***

6. Claims 37-49 are rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is set to expire within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vinod Kumar whose telephone number is (571) 272-4445. The examiner can normally be reached on 8.30 a.m. to 5.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DAVID H. KRUSE, PH.D.  
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read "David H. Kruse". The signature is written in a cursive, flowing style with a large initial "D".